

CLAIMS:

[C1] A virtual white body modeling system integrating design and assembly information from pre-existing disparate sources involved in an enterprise centric design process for a mechanical assembly comprising:

an integrated system including a data library maintaining data files corresponding to a parts list;

a network linking the data files to a work station of one or more than one member of the various groups within the enterprise involved in the design of a mechanical assembly;

means in the work station for 1) selecting a part and the associated data file representing the physical properties of the part from one or more than one parts data lists maintained in the library; 2) extracting one or more data file from the library associated with one or more part that is to be conjoined in an assembly with one or more other parts in the data file; 3) associating the parts and their data files in an assembly; 4) processing the selected parts through a mesh process; 5) saving the assembly mesh data in a database in the library; 6) building the assembly by associating mesh data with bond data relating to the manner in which conjoined parts are bonded in the assembly; and 7) translating the built assembly into a computer simulation format data record.

[C2] The system of claim 1 including the further steps of conducting a computer simulation with respect to the assembly, refining the assembly in view of the

simulation and updating the data associated with the assembly in the parts data list maintained in the library.

[C3] The system of claim 1 in which the computer simulation format data record includes an association of material properties to the meshed parts to distinguish between different materials.

[C4] The system of claim 1 in which the number of mesh elements recorded to simulate a part ranges from approximately 100 to approximately 100,000 or more.

[C5] The system of claim 2 in which the computer simulation format data record is accessed for evaluation with respect to one or more than one of crash impact, durability and noise.

[C6] The system of claim 4 in which the data record for the assembly is modified after an evaluation.